Amendments to the Drawings

Please replace Fig. 1 with the attached replacement sheet. The original drawing omitted the "G" from "FIG. 1" and the replacement sheet corrects this omission. The replacement sheet complies with 37 C.F.R §1.84(c) and §1.121(d).

REMARKS

This amendment is being filed in response to the Office Action mailed March 7, 2007. In that Office Action, claims 1-20 were rejected on prior art grounds. Claims 8-14 stand rejected under 35 U.S.C. §101 as directed toward non-statutory subject matter. Claims 1-5, 8-12, and 15-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over French-St. George, et al. (U.S. Patent 6,012,030) in view of Suominen (U.S. Patent Publication 2003/0055655). Claims 6, 7, 13, 14 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of French-St. George and Suominen in further view of Dudemaine, et al. (U.S. Patent 6,195,634). Claims 1-5 and 7-20 are currently being amended, and claims 21-25 are new. Accordingly, claims 1-25 are pending in the application.

Claims 8-14

Claims 8-14 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Specifically, the Office Action asserts that the computer readable code as claimed is subject matter not limited to that which falls within a statutory category of invention because it is not limited to a process, machine, manufacture, or a composition of matter.

Applicant respectfully asserts that the rejection under 35 U.S.C. §101 is improper for several reasons. First, the subject matter of the claims falls within statutory categories. Second, the claims do not fall within a judicial exception to the statutory categories. And third, the claims provide a practical application because they produce a useful, concrete, and tangible result.

First, to begin an analysis of whether a claim is statutory subject matter under §101, USPTO personnel must first determine whether the claimed invention falls within an enumerated statutory category. The rejected claims fall within one of the four categories of inventions defined in 35 U.S.C. §101 as being eligible for patent protection:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

Independent claim 8 is directed to a manufacture, that is, a computer readable medium storing a computer program for a speech recognition system to adjust to premature enunciator commands. The Supreme Court has interpreted the statutory range of patentable subject matter to be quite broad stating that "in choosing such expansive terms as 'manufacture' and 'composition of matter,' modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope." *Diamond v. Chakrabarty*, 447 U.S. 303, 308, 206 USPQ 193 (1980). In light of the Supreme Court's expansive interpretation of statutory classes, a computer readable medium storing a computer program is an manufacture under this definition and falls within a §101 class of statutory subject matter.

Also, the Office Action states that Applicant claims computer readable code which is a practical application in the technical arts, but as claimed is simply functional descriptive material, and thus a computer program *per se*. Further analysis is necessary, however. As stated in the MPEP, "when *functional* descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be *statutory* in most cases since use of technology permits the function of the descriptive material to be realized." MPEP § 2106.01, p. 2117 (Emphasis Added). In this case, it is admitted in the Office Action that Applicant's computer readable code is stored on a computer readable medium and is functional descriptive material and, thus, under § 2106.01 is statutory.

Second, not only are Applicant's claims directed to one of the four classes of statutory subject matter, they also do not fall into one of the judicial exceptions. After determining that the claims fall within one of the four classes, the USPTO personnel must then ascertain whether the scope of the claim covers a §101 judicial exception. MPEP, § 2106[IV][C][1], p. 2100-11. The judicial exceptions to statutory subject matter include laws of nature, natural phenomena, and abstract ideas. *Diamond v. Diehr*, 450 U.S.175,

185, 209 USPQ 1, 7 (1981). Examples of judicial exception subject matter include a new mineral found on earth, a new plant found in the wild, or Newton's law of gravity. *Chakrabarty*, 447 U.S. at 309, 206 USPQ at 197. The subject matter of Applicant's claims are clearly distinguishable from such examples and therefore do not fall into one of the three judicial exceptions.

Third, even if it appeared that the claims fell outside of one of the four statutory categories, the claims would still be directed to statutory subject matter because they are directed to a practical application, i.e., a useful, concrete, and tangible result. As stated in the MPEP § 2106[IV][C][1], p. 2100-11: "The conclusion that a particular claim includes a 35 U.S.C. §101 judicial exception does not end the inquiry because the practical application of a judicial exception may qualify for patent protection." A claimed invention is directed to a practical application of a 35 U.S.C. §101 judicial exception when it produces a "useful, concrete, and tangible result." MPEP § 2106[IV][C][2], p. 2100-11. Moreover, if the Examiner finds a practical application, the Examiner shall end the inquiry and find that the claim meets the statutory requirement of 35 U.S.C. §101. MPEP § 2106[IV][C][2], p. 2100-11. The MPEP further states that "the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is 'useful, tangible, and concrete.'" MPEP § 2106[IV][C][2](2), p. 2100-12.

Independent claim 8 produces a useful, tangible, concrete result, and therefore is directed to a practical application. Claim 8 is directed to a computer readable medium storing a computer program for a speech recognition system that adjusts to premature enunciator commands. The medium uses computer readable code for such activities as: activating the speech recognition system, receiving speech input from a user, determining that the user has spoken prematurely, and adjusting the system after determining that the user has spoken prematurely to allow for earlier detection. Each of these activities, individually or collectively, generates at least one useful, concrete and tangible result; namely adjustment of a speech recognition system to allow for earlier detection of premature enunciators.

The results in claim 8 are at least as useful, tangible, and concrete as the results held by the Court of Appeals of the Federal Circuit to be useful, tangible, and concrete results. In *Alappat*, for example, the court held that a smooth wave produced by a machine through a series of mathematical calculations on data produced a tangible result. *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373, 47 USPQ 1596, 1601 (Fed. Cir. 1998) referring to *In re Alappat*, 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994). Likewise, in *Arrhythmia*, the court held that transformation of electrocardiograph signals from a patient's heartbeat through mathematical calculations corresponded to a useful, concrete, or tangible thing—the condition of a patient's heart. *State Street Bank*, 149 F.3d at 1373, 47 USPQ at 1601 referring to *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053, 22 USPQ2d 1033 (Fed. Cir. 1992). Moreover, the court held in *State Street Bank* that the mere transformation of data representing dollar amounts through mathematical calculations into a final share price produced a tangible result. *Id*. at 1601. The result of claim 8—the adjusting of a speech recognition system to recognize premature enunciations—is at least as tangible as the smooth waveform in *Alappat*, the transformation of electrocardiograph signals in *Arrhythmia*, or the final share price in *State Street Bank*. Therefore, claim 8 produces a tangible result as defined by the Federal Circuit and is directed to a practical application.

Since claims 9-14 ultimately depend from claim 8, they are directed to statutory subject matter because of their dependence from independent claim 8. For these reasons, as well as the reasons stated above, claims 8-14 are directed to patentable subject matter. Applicants respectfully request reconsideration and withdrawal of the §101 rejection.

Claims 1-5, 8-12 and 15-19

Claims 1-5, 8-12 and 15-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over French-St. George, et al. (U.S. Patent 6,012,030) in view of Suominen (U.S. Patent Publication 2003/0055655). Applicant respectfully traverses the rejection of claims 1-5, 8-12 and 15-19 because Applicant's inventions of independent claims 1, 8,

and 15, from which claims 2-5, 9-12, and 16-19 respectfully depend, are patentably distinguishable and not obvious in view of the cited references.

French-St. George is directed to the intrinsic conflict between speech interaction and graphical interaction styles and smoothly transitioning between the two styles. Therefore, French-St. George teaches dynamically adjusting speech and audio prompts in response to a user's current interaction modality to avoid or reduce user confusion. French-St. George discloses repeating input requests or switching to a touch display when speech input is received too early or too late.

Suominen is directed to an unmet need to incorporate speech recognition capability with pen-based computers and automatically activate speech recognition for such devices. Suominen teaches a text processing system that is responsive to both voice input and freehand input to generate and edit text data. Accordingly, Suominen discloses a speech recognition activation circuit that provides a binary activation signal. The activation circuit senses the angle of impingement of sound waves as a condition for speech recognition activation and includes a plurality of sound sensors that are responsive to sound impinging on a stylus from a plurality of respective angular ranges. Such a circuit also includes a comparator for comparing the amplitudes of sound from the sound sensors. When the relative amplitude indicates that voice input or sound input is impinging on the stylus from within a predetermined angular range, the comparator makes a positive determination that causes activation of speech recognition.

Applicant's disclosure is directed to a speech recognition system that encounters premature enunciation by a user. Consequently, Applicant teaches a speech recognition system that adjusts to commands of premature enunciators. Applicant discloses determining that a user has spoken prematurely and adjusting the system to allow for earlier detection of user speech input.

Applicant's amended claims 1, 8, and 15 recite a method for a speech recognition system to adjust to premature enunciator commands that includes activating the speech recognition system, receiving speech input from a user before the system is ready to receive speech input, determining that the user has spoken prematurely, and adjusting the

system after determining that the user has spoken prematurely to allow for earlier detection of user speech input.

The combination of French-St. George and Suominen does not teach or suggest all of the elements of the Applicant's amended claims 1, 8 and 15. Specifically, neither reference discloses or renders obvious the step of adjusting the system to allow for earlier detection of user speech input after determining that the user has spoken prematurely. The Office Action states that Suominen broadly teaches an activation signal that may be asserted whenever a change in the activation of speech recognition is desired. But what Suominen actually discloses is that speech recognition is activated according to narrow, specific, and invariable conditions. Specifically, in paragraph 57, Suominen discloses:

> An activation circuit that senses angle of impingement of sound waves as a condition for activation may include a plurality (e.g. two) of sound sensors that are responsive to sound impinging on the stylus from a plurality of respective angular ranges. Such a circuit also includes a comparator for comparing the amplitudes of sound from the sound sensors. When the relative amplitude indicates that the voice input is impinging on the stylus *from within a predetermined angular range*, the comparator makes a positive determination that causes activation of speech recognition. (Emphasis Added)

There is no adjustment to these conditions "to allow for earlier detection of user input" as is claimed by Applicants.

In this regard, it is worth noting that Suominen only discloses speech recognition *activation*, which does not equal speech recognition *adjustment*. Activation amounts to an absence/presence determination of an element or event; or an on/off determination while adjustment relates to a degree to which already-activated speech recognition is performed. Suominen's speech recognition activation disclosure addresses Applicant's step of activating a speech recognition system. But while Applicant does activate a speech recognition system, Applicant also discloses an additional step missing from Suominen. Specifically, Applicant teaches adjusting of speech recognition activation to allow for earlier detection of user speech input. Again, nowhere does Suominen disclose or teach any adjusting of speech recognition activation to allow for earlier detection of user speech input.

Furthermore, Suominen teaches away from Applicant's claimed invention by teaching a ***position-based activation*** system, whereas Applicant's claims call for a ***speech-based adjustment*** system. As stated above, Suominen teaches system ***activation*** under specific conditions and system deactivation when certain conditions are no longer satisfied. Conversely, Applicant teaches system ***adjustment*** after determining the user has spoken prematurely to allow for earlier detection of speech input.

Accordingly, Applicant submits that claims 1, 8 and 15 patentably define over French-St. George and Suominen, whether considered singly or in combination with other prior art of record. Claims 2-7, 9-14, and 16-20 each ultimately depend from claims 1, 8, and 15, respectively, and should be allowed therewith. Therefore, reconsideration and withdrawal of the §103(a) rejection of claims 1-5, 8-12 and 15-19 is respectfully requested.

Claims 6, 7, 13, 14 and 20

Applicant's claims 6, 7, 13, 14 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of French-St. George and Suominen in further view of Dudemaine, et al. (U.S. Patent 6,195,634). Applicant respectfully traverses the rejection because Applicant's inventions of claims 6, 7, 13, 14 and 20 are patentably distinguishable and not obvious in view of the cited references.

Dudemaine is directed to decoys that reduce the effectiveness or speed of performing pattern matching in speech recognition. A decoy is a model for a non-vocabulary utterance that is added to a speech recognizer's lexicon. More specifically, Dudemaine is directed to decoys that can reduce the effectiveness or speed of classifying results if they produce close matches to utterances that are within the audio recognition process vocabulary. Dudemaine teaches a method of assessing decoys for use in an audio recognition process for identifying predetermined sounds in an unknown input audio signal. Dudemaine generally discloses a pattern recognition process for voice recognition having the five main steps of channel adaptation, feature extraction, word end-point detection, speech recognition and accept/reject decision logic. More precisely, the step of

word endpoint detection is performed by an algorithm that uses the energy and short time spectrum of the speech signal. This algorithm removes silence before, after, and in the middle of the speech signal, and filters out unwanted background noise in order to expedite the speech-recognition stage.

Applicant's claims 6, 13 and 20 recite, *inter alia*, a speech recognition system that filters sound overlays from user commands while claims 7 and 14 further recite the step of processing the filtered speech through the speech recognition system.

Dudemaine fails to correct the deficiencies of French-St. George and Suominen. In other words, any combination of French-St. George, Suominen and Dudemaine is still missing elements of Applicant's claims. First, where Dudemaine discloses removing unwanted background noise, Applicant filters a sound overlay that results from a voice command. More simply, a sound overlay is an automated prompt generated by the system--such as "Ready" or "Please speak"--mixed with the user's speech as shown in block 280 of Applicant's Fig. 2. One cannot simply equate background noise with a sound overlay. Background noise is unpredictable, has great variety and is unexpected, while a sound overlay is a known prompt having known characteristics that occurs at known times. Second, Dudemaine discloses removing **_silences_** before, after, and in the middle of the speech signal. Applicant notes that Dudemaine has been cited by the Office Action as teaching a word endpoint detection algorithm that removes silence before, after, and in the middle of the speech signal, and filters out unwanted background noise in order to expedite the speech recognition stage. In comparison, claims 6 and 20 disclose removing **_sound_**, not silence. Claims 7 and 14 disclose processing the filtered speech input, or processing the claimed subject matter of claims 6 and 13. Since Dudemaine fails to disclose filtering sound overlays, Dudemaine cannot then be interpreted as processing the filtered speech (i.e. speech input with the sound overlays removed). As a result, Dudemaine cannot be viewed as disclosing the subject matter of claims 6, 7, 13, 14 and 20.

Accordingly, Applicant submits that claims 6, 7, 13, 14 and 20 patentably define over French-St. George, Suominen, and Dudemaine, whether considered singly or in

combination with other prior art of record. Therefore, reconsideration and withdrawal of the §103(a) rejection of claims 6, 7, 13, 14 and 20 is respectfully requested.

New Claims

New independent claim 21 recites the steps of:

(a)   activating a speech recognition system;

(b)   indicating to the user that the system is ready to receive speech input;

(c)   listening for speech input after a predetermined time delay;

(d)   recognizing that the user has spoken before the system was ready to receive the speech input; and thereafter

(e)   indicating to the user via a prompt that the system is again ready to receive speech input;

(f)   starting a listening period before the prompt is complete;

(g)   receiving the speech input; and

(h)   filtering the received speech input to remove noise residue due to the prompt.

Nowhere does French St. George, Suominen or Dudemaine teach any of the steps of (1) starting a listening period before the prompt is complete following a recognition that the user has spoken before the system was ready to receive the speech, (2) starting a listening period for speech input before a prompt is complete, or (3) filtering the received speech input to remove noise residue due to the prompt. New claims 22-25 each ultimately depend from claim 21 and should be allowed therewith.

Conclusion

In view of the foregoing, Applicants respectfully submit that all claims are allowable over the prior art. Reconsideration is therefore requested. The Examiner is invited to telephone the undersigned if doing so would advance prosecution of this case.

The Commissioner is hereby authorized to charge Deposit Account No. 07-0960 for any required fees, or to credit that same deposit account with any overpayment associated with this communication.

Respectfully submitted,

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